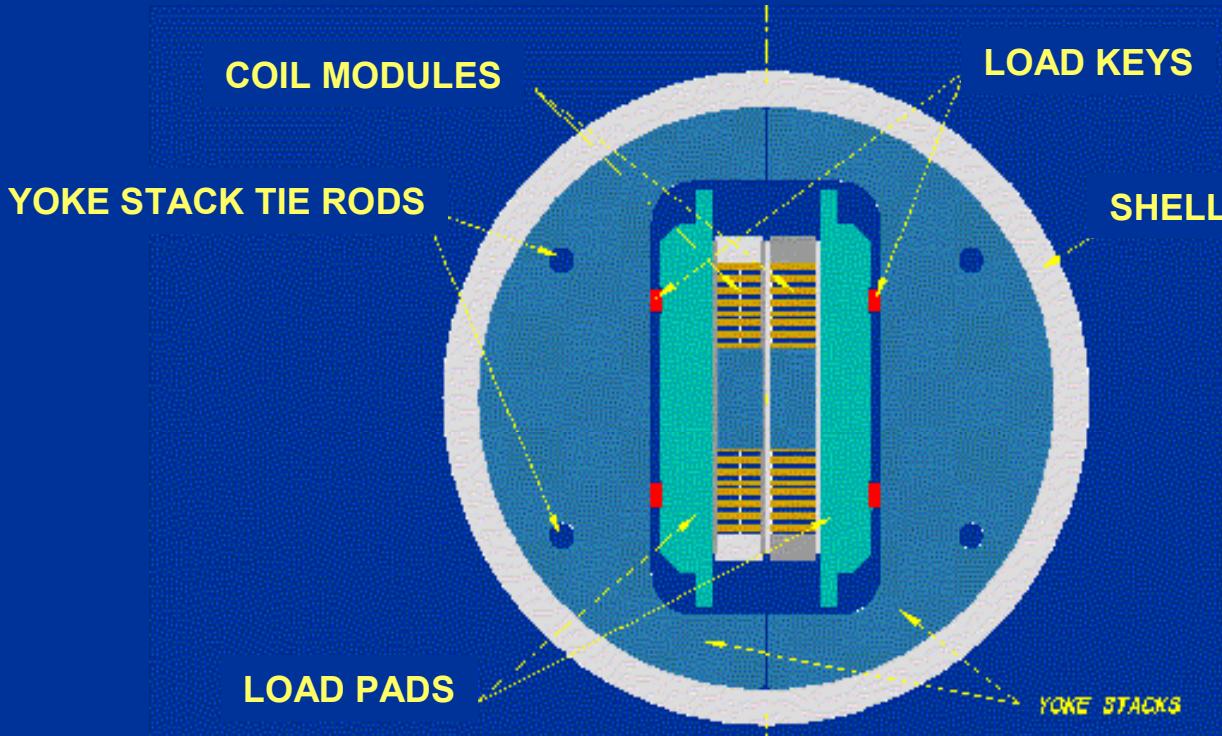




Sub-scale magnet cross-section

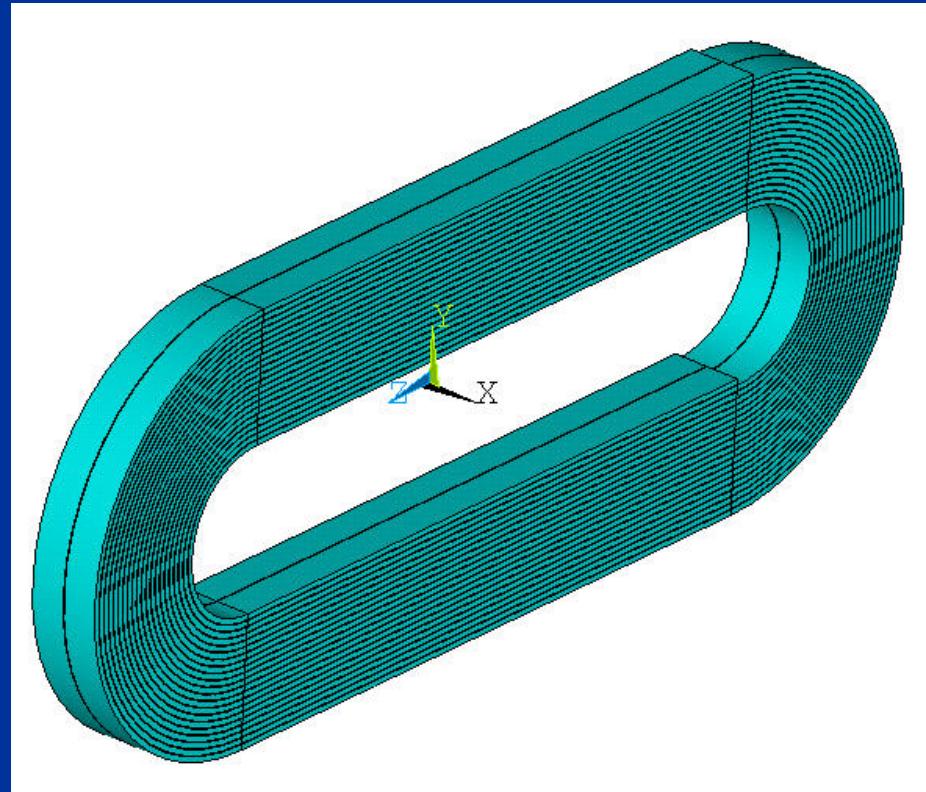


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Lorentz forces

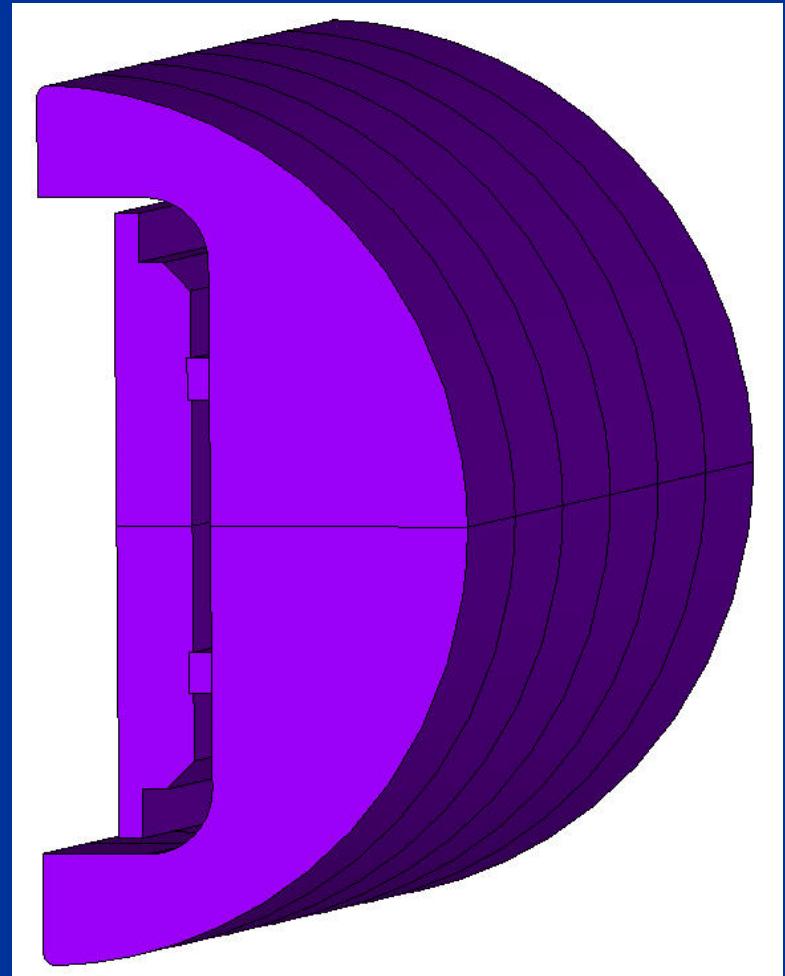
- Two layers
- 20 ÷ 21 turns per layer
- Short sample current:
~ 10 kA
- Peak field in the conductor: ~ 12 T
- Horizontal force:
 $F_x \sim 0.6 \text{ MN}$
- Stress (tension) in the aluminum shell:
 $\sigma_{\text{shell}} \sim 100 \text{ MPa}$





Keys and bladders

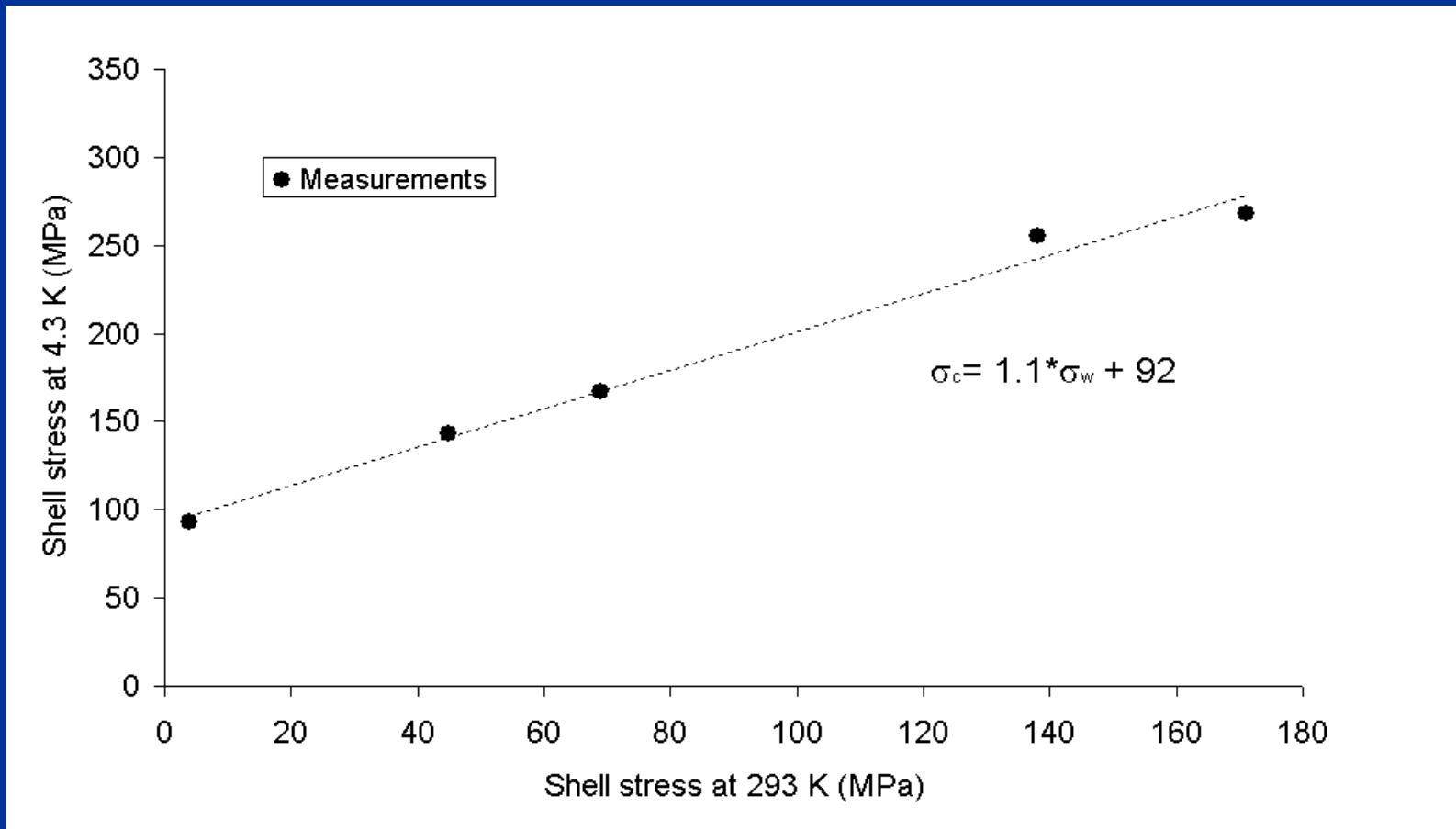
- Pressure in the bladders:
 $7 \div 90 \text{ MPa}$
($1000 \div 13000 \text{ PSI}$)
- With $P_{\text{blad}} = 40 \text{ MPa}$
→ Key interf.: $\sim 300 \mu\text{m}$
→ $\sigma_{\text{shell}} \sim 100 \text{ MPa}$



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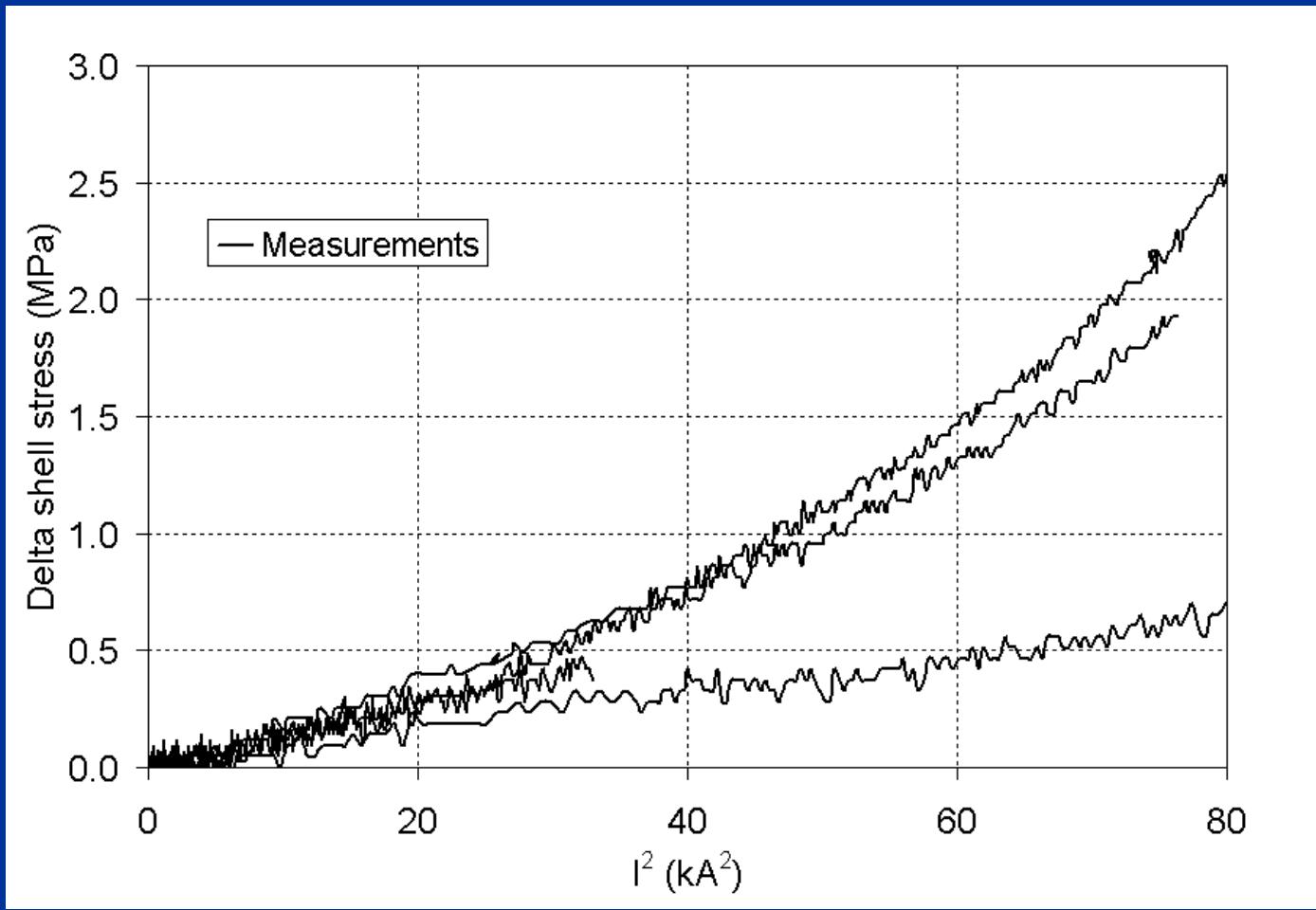
Cool-down



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Excitation

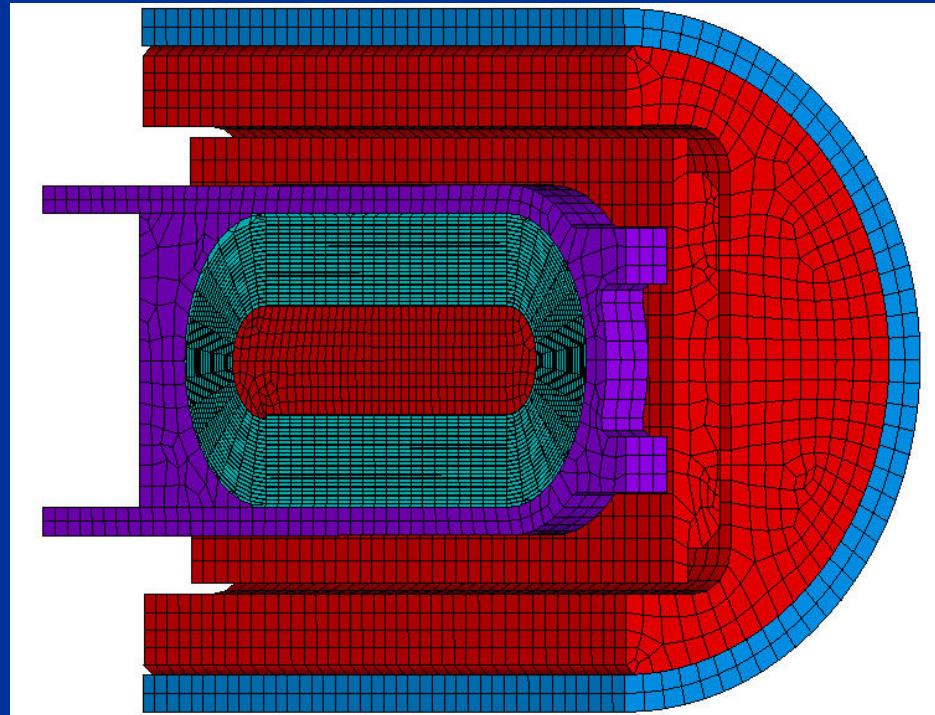


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Future plans

- Complete 3D modeling
 - Mechanical response to quench
- Training test
 - Assembly with different pre-stresses
 - Strain gauges on the coil



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